Name _____ Class _____ Date _____

Lesson 4-5

Equivalent Fractions

Lesson Objectives	**NAEP 2005 Strand:** Number Properties and Operations
To find equivalent forms of fractions	**Topic:** Number Operations
	Local Standards: _____

Vocabulary

Equivalent fractions are _____

_____

A fraction is in [ ] when the only common factor of the numerator and denominator is 1.

Example

1 Equivalent Fractions Write three fractions equivalent to $\frac{6}{9}$.

$\frac{6}{9} = \frac{\square}{\square}$ (×2 above, ×2 below) ← **Multiply the numerator and denominator by 2.**

$\frac{6}{9} = \frac{\square}{\square}$ (×3 above, ×3 below) ← **Multiply the numerator and denominator by 3.**

$\frac{6}{9} = \frac{\square}{\square}$ (÷3 above, ÷3 below) ← **Divide the numerator and denominator by 3.**

So $\frac{\square}{\square} = \frac{\square}{\square} = \frac{\square}{\square} = \frac{\square}{\square}$.

Quick Check

1. Write two fractions equivalent to each fraction.

a. $\frac{4}{10}$

b. $\frac{5}{8}$

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Examples

② Simplify a Fraction Using the GCF Write $\frac{16}{40}$ in simplest form.

16: ☐, ☐, ☐, ☐, ☐

40: ☐, ☐, ☐, ☐, ☐, ☐, ☐, ☐

← List the factors for the numerator and denominator. Find the greatest common factor.

The GCF of 16 and 40 is ☐.

$\frac{16}{40} = \frac{\square \div \square}{\square \div \square}$

← Divide the numerator and denominator by the GCF.

The fraction $\frac{16}{40}$ written in simplest form is $\frac{\square}{\square}$.

③ Using Prime Factorization A store stocks 12 types of blue pens, 6 types of black pens, and 2 types of red pens. In simplest form, what fraction of the types of pens are blue?

Add to find the total number of pen types to find the denominator:

$12 + 6 + 2 =$ ☐. Write the fraction.

$\frac{\square}{\square}$

← number of types of blue pens

← total number of types of pens

$\frac{12}{20} = \frac{\square \times \square \times \square}{\square \times \square \times \square}$

← Write the prime factorization of the numerator and the denominator. Divide the common factors.

$\frac{\square \times \square \times \square}{\square \times \square \times \square}$

← Divide the common factors.

So $\frac{\square}{\square}$ of the types of pens are blue pens.

Quick Check

2. Write $\frac{24}{32}$ in simplest form.

3. In simplest form, what fraction of the types of pens in Example 3 are red pens?

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Practice 4-5

Equivalent Fractions

Name the fractions modeled and determine if they are equivalent.

1. 

_____

2. 

_____

3. 

_____

By what number can you multiply the numerator and denominator of the first fraction to get the second fraction?

4. $\frac{2}{3}, \frac{4}{6}$ _____

5. $\frac{3}{8}, \frac{15}{40}$ _____

6. $\frac{7}{10}, \frac{42}{60}$ _____

By what number can you divide the numerator and denominator of the first fraction to get the second fraction?

7. $\frac{6}{8}, \frac{3}{4}$ _____

8. $\frac{70}{80}, \frac{7}{8}$ _____

9. $\frac{15}{60}, \frac{1}{4}$ _____

Write two equivalent fractions for each fraction.

10. $\frac{3}{10}$ _____

11. $\frac{7}{8}$ _____

12. $\frac{5}{6}$ _____

13. $\frac{15}{20}$ _____

14. $\frac{8}{12}$ _____

15. $\frac{15}{45}$ _____

State whether each fraction is in simplest form. If it is not, write it in simplest form.

16. $\frac{15}{35}$ _____

17. $\frac{22}{55}$ _____

18. $\frac{34}{36}$ _____

19. $\frac{19}{57}$ _____

20. $\frac{27}{54}$ _____

21. $\frac{30}{41}$ _____

Solve.

22. A library has 10 camping guide books, 4 fishing guide books, and 6 hiking guide books. In simplest form, what fraction of the guide books are camping or hiking guide books?

_____